

**REMARKS**

Claims 1-24 are pending in this application, of which claims 1, 2, 8-11, and 18 are independent. In this Amendment, claims 1, 2, 4, 8-11, and 18 have been amended. Care has been exercised to avoid the introduction of new matter. Support for the amendments to the claims can be found in, for example, page 17, line 7 to page 19, line 6; page 26, lines 4-16; page 28, line 17 to page 29, line 10; and page 29, lines 20-26 of the specification, and Figs. 6A and 6B.

**Interview**

Applicant acknowledges, with appreciation, Examiner Alam's courtesy and professionalism in conducting a telephone interview on January 5, 2010, during which the present Amendment was discussed. It is Applicants' understanding that the present Amendment would overcome the rejections of the claims.

**Subject Matter Disclosed in the Present Application**

The subject matter of the present application is exemplarily described in Figs. 6A and 6B. For the Examiner's convenience, relevant description of Figs. 6A and 6B is reproduced below (emphasis added):

FIGS. 6A and 6B show directional patterns of antennas formed by the base station apparatus 16. Compared with FIG. 1, virtual interception terminal apparatuses 92 and antennas 94 for use with virtual interception terminal apparatus are additionally included therein, but they are not actually present but merely potentially or virtually created. FIG. 6A shows the directivity of antennas of the base station apparatus 16 in a case where the transmission weight vector 212 is generated from the received response vector 210 only. Antenna beams of the base station apparatus 16 formed and caused by the antenna 12 for use with terminal apparatus cover the desired terminal apparatus 10. At the same time, another beams of the base station apparatus 16 different from those facing in the direction of the desired terminal apparatus 10 cover the virtual interception terminal apparatus 92.

FIG. 6B shows the directivity of antennas 14 of the base station apparatus 16 in a case where the virtual response vector is taken into account in addition to the received response vector 210, that is, in the case when the transmission weight vector 212 is generated from both the received response vector 210 and the virtual response vector. Here, it is assumed that used is a virtual response vector where the antenna beams are not directed in the direction of the virtual interception terminal apparatus 92 when the transmission weight vector 212 is generated. As a result, the antenna beams of the base station apparatus 16 formed and caused by the antenna 12 for use with terminal apparatus cover the desired terminal apparatus 10 whereas another beams of the base station apparatus 16 different from those facing in the direction of the desired terminal apparatus 10 do not cover the virtual interception terminal apparatus 92. Since the base station apparatus 16 is generally not aware of directions in which the virtual interception terminal apparatus 92 is located, the base station apparatus 16 changes, at predetermined time intervals, the directional information contained in the virtual response vector so as to generate the transmission weight vector 212. That is, the directions of the antenna beams formed by the antenna 12 of the terminal apparatus 10 is changed with time. Thus, although the base station apparatus 16 has a predetermined probability of transmitting signals to the virtual interception terminal apparatus 92, this scheme according to the present embodiment makes it difficult to perform decoding at the virtual interception terminal apparatus 92 because the transmission of the signals is not continuous.

Independent claims 1, 2, 8-11, and 18 have been amended based in part on the above description of the specification to clarify the claimed subject matter.

#### **Claim Rejections—35 U.S.C. § 112**

Claims 1-24 have been rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner asserted as follows (the paragraph bridging pages 2 and 3 of the Office Action) (emphasis in original):

Consider all the independent claims, the limitations recite “...virtual terminal apparatuses which are not present in reality... assumed to be imaginarily present...”. The limitations present new matter since according to the specifications, a virtual apparatus may be present and therefore, not necessarily be imaginary or not real, and in addition, the apparatus will be real whether present or not in a given range of coverage. In fact, according to figure 6 a virtual apparatus exists in reality. Applicant needs to properly comply with the definition of the virtual or potential apparatus in order to avoid new matter.

In order to expedite the prosecution, Applicant has deleted the wording added to the claims in the June 17, 2009 Amendment, but has reinstated the wording added to the claims in the May 1, 2006. Accordingly, the issues raised by the Examiner under 35 U.S.C. § 112, first paragraph are obviated. Applicant, therefore, respectfully solicits withdrawal of the rejection of the claims.

**Claim Rejections—35 U.S.C. § 102**

Claims 2-4, 10-13, and 18-20 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Hind et al. (U.S. Patent Application Publication No. 2004/0203908, hereinafter “Hind”).

Hind does not identically disclose a radio apparatus including all the limitations recited in independent claim 2, a transmission method including all the limitations recited in independent claims 10 and 11, and a computer readable storage medium including all the limitations recited in independent claim 18.

With respect to independent claim 2, Hind does not specifically disclose, among other things, the following limitations as recited in the claims:

a generator which generates a transmission weight vector based on the received response vector computed by said computing unit and the one of the virtual response vectors acquired by said acquiring unit, the received response vector and the virtual response vectors being used to form the transmission weight vector indicating an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

a transmitter which transmits a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generator,

wherein said acquiring unit acquires again another virtual response vector such that the direction in which the one of the virtual terminal apparatus exists is

changed to another direction, and the thus reacquired virtual response vector is again subject to processes by said generator and said transmitter.

Hind is directed to wireless networks in which access to a wireless network from a device can be denied if the device is outside the predetermined spatial boundary (*see* the abstract).

However, Hind does not disclose, among other things, “the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna’s directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller,” as claimed. Further, Hind does not disclose that another virtual response vector is used such that “one of the directions in which the one of the virtual terminal apparatus exists is changed to another direction, and the thus reacquired virtual response vector is again subject to processes by said generator and said transmitter,” as claimed. *See*, e.g., Figs. 6A and 6B of the present application.

Based on the foregoing, Hind does not identically disclose a radio apparatus including all the limitations recited in independent claim 2. The above discussion is applicable to independent claims 10, 11, and 18 at least because these claims recite limitations similar to the above-discussed limitations of independent claim 2. Dependent claims 3, 4, 12, 13, 19, and 20 are also patentably distinguishable over Hind at least because these claims respectively include all the limitations as recited in independent claims 2, 11, and 18. Applicant, therefore, respectfully solicits withdrawal of the rejection of the claims and favorable consideration thereof.

### **Claim Rejections—35 U.S.C. § 103**

1. Claims 1, 8, and 9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hind in view of Ahl et al. (U.S. Patent No. 5,448,753, hereinafter “Ahl”).

Hind and Ahl, individually or in combination, do not disclose or suggest a radio apparatus including all the limitations as recited in independent claim 1, and a transmission method including all the limitations as recited in independent claims 8 and 9.

With respect to independent claim 1, the applied combination of the references does not specifically teach, among other things, the following limitations as recited in the claim:

an antenna's directional pattern is formed in accordance with a received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal and a virtual response vector being stored in advance, the received response vector and the virtual response vectors being used to form the antenna's directional pattern such that a signal strength in a first direction to the terminal apparatus becomes greater whereas a signal strength in a second direction to one of the virtual terminal apparatuses becomes smaller; and a signal is transmitted to the terminal apparatus which is the targeted communication party such that the directional pattern is varied so as to prevent each of the plurality of virtual terminal apparatuses from continuously receiving the signal by changing from the second direction to a third direction to another one of the virtual terminal apparatuses at predetermined intervals.

The limitations of claim 1 are similar to those of claim 2 discussed above. Applicant, thus, incorporates herein the arguments made in response to the rejection of independent claim 2 under 35 U.S.C. § 102(e) for anticipation as evidenced by Hind.

The Examiner's additional comments and reference to Ahl do not cure the deficiencies of Hind because Ahl does not teach, among other things, the claimed antenna's additional pattern to be formed in accordance with a received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal and a virtual response vector being stored in advance, as claimed.

Based on the foregoing, Hind and Ahl, individually or in combination, do not disclose or suggest a radio apparatus including all the limitations as recited in independent claim 1. The above discussion is applicable to independent claims 8 and 9 at least because these claims recite limitations similar to the above-discussed limitations of independent claim 1. Applicant,

therefore, respectfully solicits withdrawal of the rejection of the claims and favorable consideration thereof.

2. Claims 5-7, 14-17, and 21-24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hind.

Claims 5-7 dependent on independent claim 2, claims 14-17 depend on independent claim 11, and claims 21-24 depend on independent claim 18. Applicant thus incorporates herein the arguments made in response to the rejection of independent claims 2, 11, and 18 under 35 U.S.C. § 102(e) for anticipation as evidenced by Hind. The Examiner's additional comments do not cure the deficiencies of Hind. Applicant, therefore, respectfully solicits withdrawal of the rejection of the claims and favorable consideration thereof.

### **Conclusion**

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.


To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

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including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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